Attorney Docket No. KYP-105-A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Tsujimichi, et al.
Serial No.:	10/625,272
Filed:	July 23, 2003
Art Unit:	1793
Examiner:	Edward M. Johnson
Confirmation No.:	8414
Title:	PHOTOCATALYTIC HYDROPHILIFIABLE MATERIAL

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

Concurrent with applicant's Notice of Appeal, appealing the Examiner's final rejection of claims 53-67, applicant respectfully submits this Pre-Appeal Brief Request for Review for consideration by a Review Panel.

Grounds of Rejection to be Reviewed

In item 2 of the Office Action, the Examiner rejected claims 53, 54, 56-58, 60, 66, and 67 under 35 USC 102(e) as anticipated by, or in the alternative, under 35 USC 103(a) as obvious in light of Komatsu et al. U.S. 5,854,708 ("Komatsu"), while in item 4 of the Office Action, the Examiner rejected claims 55, 59, and 61-65 under 35 U.S.C. § 103 as unpatentable over Komatsu.

Appellant traverses these rejections because there is a *clear, fundamental distinction* between the claimed invention and the anti-fog element of Komatsu whereby Komatsu does not anticipate or make obvious any of claims 53-67. Particularly, the claimed invention requires a *single surface layer* having a photocatalyst component and two other components which are all disposed within the *single layer* in close proximity to one another (substantially intimately mixed), whereas directly contrary thereto Komatsu's anti-fog element requires a photocatalyst layer and a *separate second layer* provided on the surface of the photocatalyst layer. This important distinction goes directly to the problem identified in the present specification and overcome by the claimed invention.

The Examiner's position is best reflected in a "Response to Arguments" set forth in the final Office Action in which he briefly responds to some of applicant's arguments set forth in the Amendment of 20 February 2008. The Examiner's responses are essentially as follows:

a) Regarding applicant's argument that Komatsu's anti-fog element *includes two films or layers*, contrary to the claimed invention in which the three or more components are all situated within a *single surface layer* such that all of the components are in close proximity to one another within the single surface layer, the Examiner finds such argument unpersuasive because applicant's specification also describes discrete layers and sols at pages 25-26;

b) Regarding applicant's argument "that Komatsu does not disclose using a *mixture of Si02 and A1203*, nor does it disclose using any mixture of inorganic oxides for the inorganic oxide film", the Examiner finds such argument unpersuasive because both silica and alumina are layered together over the substrate of the claim and the prior art with no intervening layers or components such that at least some contact/combination of the two would occur;

c) Regarding applicant's argument that Komatsu's multi-layered structure *teaches away from the claimed invention*, and is evidence of the non-obviousness thereof, the Examiner finds such argument unpersuasive because the prior art does not teach away from the claimed single layer invention, since the prior art does not teach that such should be specifically avoided;

d) Regarding applicant's argument that when used for cleaning air, as claimed, applicant's single-layer structure is far superior to the laminate disclosed by Komatsu, ", the Examiner states that such argument is unpersuasive. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious, while the Examiner also asserts that the has "reason to believe" in inherent characteristics of Komatsu's element, whereby the burden of proof is shifted to the applicant to prove that the subject matter shown in the prior art does not possess the characteristics relied upon, pursuant to *In re Fitzgerald*, 205 USPQ 294 (CCPA 1980); and

e) Regarding applicant's argument that the laminated, multiple-layer structure of Komatsu actually shields (masks) the beneficial photocatalytic material below a surface layer of silicon dioxide, whereas the claimed structure traps ambient organic material in a single exterior layer which contains photocatalytic material which is not masked by any cover layer, the Examiner finds such argument unpersuasive for the reasons discussed in a) – d).

Appellant's Response

Appellant respectfully traverses the rejections and the Examiner's Responses because Komatsu neither anticipates nor makes obvious the claimed invention for those reasons explained in the

Amendment dated 20 February 2008. Without repeating all of the arguments previously explained, appellant will attempt to briefly explain basic / fundamental differences between the claimed invention and the anti-fog element of Komatsu, to explain why the Examiner's rejections and Responses appear to be based on an incorrect reading of applicant's disclosure, and to show that the Examiner has not established prima facie anticipation or establish prima facie obviousness under 35 USC 102, 103 of any of the present claims.

The claimed invention is directed to a method for cleaning air. The method involves the use of a composite comprising a substrate and a *single* surface layer. The surface layer is hydrophilic and self-cleanable, and comprises at least three components. The three required components are: (1) a photocatalyst, (2) a component comprising a first metal oxide selected from a first identified Markush group, and (3) a component comprising a second metal oxide selected from a second identified Markush group. The above three components are *all situated within the surface layer which is provided as a single surface layer, such that all of the components are in close proximity to one another within the layer.*

As explained in the background section of the present specification, appellant has discovered / determined that while photocatalysts are conventionally used for converting nitrous oxides (NOx) to nitric acid, etc., a problem of the conventional photocatalytic systems is that they permit NO_2 (an intermediate product in the photocatalytic reaction process) to escape without being fully reacted, and even where porous adsorbents such as activated carbon are used to prevent escape of the NO_2, this only provides marginal improvement for the conventional systems. In contrast to convention, the claimed invention (including the three components in close proximity in a single surface layer) greatly enhances the conversion of NO_2 to nitric acid, thereby solving the discussed problem of the prior art, as also explained throughout the present specification. The close proximity of the three components in the single surface layer is believed to provide the superior functionality achieved with the claimed method.

Directly contrary to the claimed invention involving at least three components in a single surface layer, Komatsu's anti-fog element is comprised *of two films or layers*, with one provided on a surface of the other, i.e., an inner photocatalyzer film, and an outer inorganic oxide film on the photocatalyzer film. Given this *indisputable distinction*, Komatsu does not anticipate the claimed invention under 35 USC 102(e) because his anti-fog element does not include the claimed single surface layer. Moreover, given that Komatsu's disclosed / claimed invention requires the photocatalyst and the porous inorganic oxide to be disposed in two separate / distinct layers, the claimed invention is not made obvious under 35 USC 103 by Komatsu. Based on Komatsu's actual disclosure, persons skilled in the art would find that: Komatsu *teaches away from the claimed invention*, and hence is evidence of the

non-obviousness of the claimed invention; and the reference provides no motivation whatsoever for modifying the multi-layer element such that three components (i)-(iii) are provided in a single surface layer such as in the present claims, because such modification would involve violation and destruction of Komatsu's invention.

In this regard, appellant respectfully traverses that the Examiner's Responses a) and e) above because they do not accurately reflect the actual disclosure of the present specification or controlling law. While the present application may describe discrete layers and sols at pages 25-26, the described sols and layers are *not disclosed as being used together in a single composite structure having multiple layers*. Rather, each of the formulated sols is disclosed as being individually used to form a single surface layer on a separate / different tile. See, for example, the plural term "tiles" which appears at lines 4 and 8 on page 26. Given the specific discussion at pages 25-26, as well as the overall discussion of the invention throughout the present specification as *specifically involving a single surface layer*, it is *inaccurate and unreasonable* to interpret applicant's disclosure as encompassing a multilayer structure.

Regarding the Examiner's Response c) above, appellant respectfully traverses the same because it is not a reasonable or accurate application of the law. Based on the fact that Komatsu requires a multi-layer structure for his anti-fog element, persons of ordinary skill in the art would recognize that this is a teaching away from the presently claimed invention in which the components (i) – (iii) are disposed in a single surface layer. It is not a legal requirement that Komatsu expressly state that his element cannot involve a single layer structure in order to teach away from the claimed invention. Persons skilled in the art would clearly understand that the required multi-layer structure precludes a single layer structure even though Komatsu may not expressly state this.

Regarding the Examiner's Response b) above, appellant respectfully traverses the same, again, because Komatsu does not disclose using a *mixture of Si02 and A1203*, nor does he disclose using any mixture of inorganic oxides for the inorganic oxide film. He simply discloses use of these two compositions in the alternative. Moreover, he certainly never discloses including the inorganic oxide material in the same (single) surface layer as his photocatalyst.

Regarding the Examiner's Response d) above, appellant respectfully traverses the same because the Examiner's position is *not objectively reasonable* given the facts of the present matter, which are not at all like the facts in *In re Fitzgerald*. Here, the Examiner is asserting an incorrect / mistaken interpretation of applicant's disclosure, i.e., applicant does not disclose a multi-layer structure as the Examiner is asserting or implying. Moreover, from an objective point of view, there is a very significant structural distinction between the claimed invention involving a *single surface layer* with the three components (i) – (iii) and Komatsu's anti-fog element in which an inorganic film/layer is deposited

over a photocatalytic layer in *a multi-layer structure*. This is especially so given the importance of the claimed feature in solving a problem of the prior art as discussed throughout the present specification.

Quite differently, in *In re Fitzgerald* the claimed fastener and the prior art fastener were either identical or only slightly different (both possessed the same utility, both employed the came crystallizable polymer nylon 11, and both had an adherent patch formed by melting and then cooling the polymer), and the court found the PTO's position on burden shifting to be *objectively reasonable* given the indisputable similarity of the claimed invention and the prior art. Here the claimed and prior art structures *are indisputably different as an objective matter*, i.e., single layer v. multiple layers. Correspondingly, there is there is no objectively reasonable basis for the Examiner to believe that Komatsu's multi-layer structure inherently functions the same as the claimed invention, unlike the situation in *In re Fitzgerald*. Correspondingly, the Examiner cannot properly shift the burden of proof on this point.

Conclusion

For all of the foregoing reasons, appellant submits that the Examiner has not established prima facie anticipation or prima facie obviousness of any of claims 53-67. Appellant respectfully requests that the Panel reverse the Examiner's final rejection of claims 53-67. Applicant further respectfully requests that the Panel direct the Examiner to allow all of these claims.

Favorable consideration is respectfully requested.

Respectfully submitted,

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CERTIFICATE OF ELECTRONIC TRANSMISSION

I hereby certify that this correspondence is being electronically transmitted, via EFS-Web, to the United States Patent and Trademark Office, on October 29, 2008.

/Joseph P. Carrier/

JPC/ms